

Energy Facility Site Evaluation Committee

Tennessee Gas Pipeline Company

Docket No. SEC 2008-_____

Environmental Impacts

1. Introduction

Because the Project involves only compression to be installed on approximately 11.6 acres that Tennessee owns, it will impose minimal impacts upon landowners and the environment. The following information details the anticipated impacts associated with the siting and construction of the Project. Tennessee has consulted with the U.S. Fish & Wildlife Service ("USFWS"), the New Hampshire Natural Heritage Bureau ("NH NHB"), the New Hampshire Department of Historical Resources ("SHPO"), and other state and local agencies regarding existing environmental resources and potential impacts associated with the Project. As outlined below, the Project incorporates proven construction practices and mitigation procedures, will not result in significant adverse effects on the human environment, and does not qualify as a major federal action requiring an environmental impact statement.

The areas encompassing the site of the compressor station and associated temporary construction workspace will be cleared of vegetation and graded as necessary to create level surfaces for the movement of construction vehicles and to prepare the area for the building foundations. Tennessee will leave all the trees that do not interfere with the safe construction and operation of the compressor facility. A ten-foot safety buffer zone around the fence line and access road will be cleared of mature trees for maintenance and security reasons. Tennessee will install silt fence and/or hay bales around disturbed areas, as appropriate, to minimize the potential for erosion and to prevent indirect impact to the wetlands and watercourse located outside of the construction workspace. Erosion and sediment controls will conform to the FERC's Plan. The majority of the site of the compressor station is situated on very deep, well-drained soils. As a result, Tennessee does not anticipate that blasting will be necessary to prepare a level construction site. Such blasting, if required, will be conducted in accordance with appropriate regulations.

The piping modifications at the Laconia Meter Station shall be conducted using conventional construction techniques. During the construction at the site, Tennessee will require its contractors to install and maintain appropriate erosion controls as described in FERC's Plan. Any soils disturbed while replacing pipe will be restored to pre-construction conditions upon completion of the Project or as soon thereafter as weather and other conditions permit. Final grading and landscaping will be consistent with the FERC's Plan for the restoration of uplands.

Water Use and Quality

Groundwater Resources

Tennessee determined the nature and location of wetlands, surface waters, springs, wells, groundwater hazards and point and non-point pollution sources by consulting appropriate agencies and conducting thorough field verification and delineation surveys during 2007. Tennessee proposes to construct the Project in accordance with EFSEC's conditions, the FERC's Plan, Tennessee's SPCC Plan, and other applicable permits and approvals.

1. Aquifers

The United States Environmental Protection Agency ("USEPA") administers the Sole Source Aquifer Program which is implemented across the entire country to protect groundwater aquifers that supply at least fifty percent of the drinking water consumed in the area overlying the aquifer. EPA guidelines also require that the area overlying the aquifer have no alternative drinking water sources that could physically, legally, and economically supply water to all who depend on the aquifer for drinking water (USEPA 2007a).

The New Hampshire Department of Environmental Services ("NHDES") established its Drinking Water Source Assessment Program ("DWSAP") as part of its Drinking Water Source Protection Program ("DWSPP") to help improve protection of public water supply sources (NHDES 2007a). Establishment of the DWSAP was required by the federal Safe Drinking Water Act Amendments of 1996, and NHDES's approach to source water protection was approved by the USEPA in May of 1999. This approach to source protection involves federal, state, regional, and local agencies and other stakeholders to identify and prioritize issues and work tasks in order to improve the comprehensiveness, effectiveness, efficiency, and coordination of protection efforts (NHDES 2007b).

The Compressor Station 270B1 and the Laconia Meter Station sites are not located over a primary, principal, or sole source aquifer as mapped by the EPA (USEPA 2007a). The Pelham-Brook Aquifer, located along Beaver Brook north of the Project site, has been identified by the Nashua Regional Planning Commission as the only potential source aquifer for the Town of Pelham (NRPC 2007). Correspondence from the USEPA, which is included in Appendix K, stated that the Project will not adversely affect any aquifer resources (Hill 2007).

2. Public and Private Water Supply Wells

2.1 Compressor Station 270B1

All water supplied to the residents of the Town of Pelham comes from private wells. The Town of Pelham provides no public water to its residents and is entirely dependent on groundwater aquifers to supply potable water to residents (NRPC 2007 and NRPC 2002). A portion of the compressor station is located within a NHDES Wellhead Protection Area ("WHPA") (Rigrod 2007). The Wellhead Protection Program is established through the Drinking Water Rules and Groundwater Protection Act. The WHPA extending into the compressor station site surrounds

the Pelham Industrial Park well, a non-transient, non-community (“NTNC”) bedrock well supplied by groundwater (NHDES 2007e)(See Figure 2-1a, Appendix D). Bedrock NTNC WHPAs are delineated using volume-dependent circles that assume water comes from one major water-bearing fracture. A maximum default distance of 4,000 feet is used as a cut-off when delineating WHPAs for NTNC bedrock wells (NEIWPCC 2001). The Pelham Industrial Park well is located approximately 470 feet from the Project site. Tennessee will follow its SPCC and the FERC’s Plan to ensure that the installation, operation, and maintenance of the compressor station and modifications at the Laconia Meter Station do not adversely affect groundwater. There are no private water wells within 250 feet of any designated workspace areas at the compressor station, and there are no public or private water supplies or WHPA’s within 250 feet of the Laconia Meter Station.

2.2 Laconia Meter Station

Penacook Lake in West Concord has been the City of Concord’s primary water supply for over one hundred years. The City of Concord supplements this supply by using a pumping station on the Contoocook River. Concord also has a groundwater supply along the Soucook River, which is managed as an emergency or back-up supply (City of Concord 2007). There are no public or private water supplies or WHPA’s within 250 feet of the Laconia Meter Station.

3. Springs

No springs were identified during field surveys on the compressor station or meter station sites. Consultation with the NHDES DWSP did not identify any springs within 300 feet of the compressor station site.

4. Groundwater Contamination

The construction and operation of the compressor and meter station facilities should not impact groundwater quality. Similar to Tennessee’s existing facilities, the construction and operation of the compressor station does not involve a land use that would threaten the quality of groundwater. Any inadvertent release of hazardous materials during construction activities would be immediately contained and cleaned-up in accordance with Tennessee’s SPCC Plan.

Surface Water Resources

2.1 Compressor Station 270B1

The Compressor Station 270B1 site is located within the Merrimack River drainage basin, which covers approximately 5,010 square miles in south-central New Hampshire and extends into Massachusetts. (NHDES 2007c). On a local level, this site occurs within the sub-regional drainage basin of Beaver Brook, which is a tributary to the Merrimack River. The Beaver Brook drainage basin is 46,735 acres in size and is characterized by forest, cleared land, roads, and residential development. The Merrimack River is not part of the federal Wild and Scenic River system although portions of the Merrimack are listed on the Nationwide Rivers Inventory with a potential classification for recreational values (NPS 2007). Listed sections of the Merrimack

River include the upper reaches and are located a minimum of twenty-five miles upstream from the confluence with Beaver Brook. Given the distance from, and downstream location of, the Project site, the Project would not affect the recreational resources along the listed sections of the Merrimack River.

The property is bordered on the northeast by Beaver Brook and an associated wetland. These surface waters are not expected to be impacted or affected by the Project. Construction will take place in the upland portions of the Project site a minimum of fifty feet from the stream bank. The wetland locations are also depicted on the plan drawings provided in Appendix D.

Tennessee is proposing to hydrostatically pressure test the compressor station facility per Subpart J of Section 192 of the DOT Code of Federal Regulations that establishes minimum leak-test and strength-test requirements for pipelines, including testing to substantiate the maximum allowable operating pressure. Approximately 40,000 gallons of water will be needed to test the new Compressor Station 270B1 pipe prior to the start of operations. Either municipal supplies or water trucked to the site would be used for testing purposes. After the completion of the hydrostatic test, the water would be discharged to an upland area in accordance with the FERC's Plan and Procedures.

Compressor Station 270B1 is not located in the watershed of a public drinking water supply (NRPC 2007 and NRPC 2002). Drinking water supplies in the Project area are derived from groundwater supplies, not public reservoirs or other surface waterbodies.

The construction and operation of Compressor Station 270B1 will not impact any municipal or public water supplies because the Project is not located within any public water supply watersheds and does not directly impact any surface water bodies. During construction of the compressor station facilities and meter station modifications, Tennessee will adhere to the applicable provisions of the FERC's Plan and Procedures. Erosion controls, such as hay bales and/or silt fence, will be installed prior to commencement of construction to avoid the transport of disturbed sediments to the adjacent Beaver Brook and Soucook River. All erosion controls will be monitored throughout construction until successful implementation of final grading and landscaping. As a result, no impacts to surface water resources associated with construction or operation of the aboveground facilities are anticipated.

2.2 Laconia Meter Station

The site of the Laconia Meter Station is also located within the Merrimack River drainage basin, which is described in Section 2.1 above. Within the Merrimack River drainage basin, the Laconia Meter Station site occurs within the sub-regional drainage basin of the Soucook River, which is a tributary to the Merrimack River. The Soucook River drainage basin is characterized by forest, cleared land, roads, and residential development (Merrimack River Watershed Council, Inc. 2007). There is also extensive commercial and industrial development atop the bluffs above the corridor along Route 106 and Route 3 in both Concord and Pembroke (Concord Planning Board 2008).

The Laconia Meter Station property is located approximately 5,000 feet east of the Merrimack River and approximately 500 feet southeast of its tributary, the Soucook River. A wetland associated with the Soucook River borders the property to the east (See Figure 2-5b in Appendix D). Modifications to the meter station will take place within the pre-existing meter station fence line. Therefore, modifications to the meter station will not impact any wetlands.

The City of Concord's primary water supply is located west of the Merrimack River up-gradient of the Laconia Meter Station Project site (City of Concord 2007).

3. Wetlands

Jurisdictional wetlands and waters of the United States are regulated by the United States Army Corps of Engineers ("USACE") pursuant to Section 404 of the Clean Water Act. Wetlands, a collective term for swamps, marshes, bogs, wet meadows, and similar areas, are often located between open water and dry land. Wetland investigations were performed in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and classified according to Cowardin et al. (1979).

Prior to initiating field surveys, Tennessee conducted desktop analysis of the Project area using the NWI database and the New Hampshire GRANIT Data mapper. The NWI maps depict all wetland types and sizes as interpreted from aerial photography and United States Geologic Survey ("USGS") quadrangle maps. Figures 2-5a and 2-5b in Appendix D depicts the NWI and respective state wetland mapping in the vicinity of the Project. Full-size NWI maps are provided in Appendix D.

3.1. Compressor Station 270B1

Tennessee delineated wetland and watercourse boundaries at Compressor Station 270B1 site. Tennessee delineated one wetland complex within the 11.6 acre site. Wetland 1 consists of palustrine forested and scrub shrub ("PFO/PSS") components along the northeastern property boundary and is associated with Beaver Brook as previously described in Section 2.2. No construction is proposed within the wetland complex, and the construction workspace will be located a minimum of fifty feet from the boundary of the delineated wetland. Please refer to the Wetland Delineation Report (Appendix J) for additional information.

As part of Project, Tennessee sent the USACE New England District the wetland delineation report in January 2008 and a request to verify the jurisdictional wetland boundaries and provide written confirmation that Sections 10, 401, and 404 permitting will not be required for the construction of the Compressor Station 270B1. Additionally, Tennessee sent a written request in January 2008 to the NHDES-Wetlands Bureau requesting written concurrence that no wetlands permit or notification will be needed from the NHDES to construct the compressor station. Copies of these letters are provided in Appendix K.

3.2 Laconia Meter Station

A wetland borders the Laconia Meter Station property to the east. Modifications to the meter station will be located outside of, and will have no impact on, the identified wetland.

All workspace areas for construction of the compressor station and the modifications of the Laconia Meter Station have been sited outside of delineated wetland resources as well as the fifty-foot buffer bordering these wetlands. Tennessee will construct the Project in accordance with its construction BMP's and the FERC's Plan and Procedures to protect on and off-site wetlands from sedimentation during construction. Additionally, Tennessee will stabilize and restore the work areas immediately upon completion of construction activities.

Fish, Wildlife, and Vegetation

1. Fisheries

Game and non-game fish species are regulated and protected under various state and federal legislation, including the Fish and Wildlife Conservation Act of 1980 (16 USC 2901-2911), and the Fish and Wildlife Coordination Act of 1958 (16 USC 661 *et seq.*). Consultation with the NH FG indicated that Beaver Brook, located approximately seventy-five feet north of the edge of construction workspace at the Compressor Station 270B1, contains primarily warm water fisheries (bass, sunfish, bullheads, minnows) resources. Two species of “conservation concern” found in Beaver Brook in past sampling efforts include redbfin pickerel (*Esox americanus*) and American eel (*Anguilla rostrata*). Beaver Brook is also stocked with a mixture of brook, brown, and rainbow trout in the early spring to provide a seasonal coldwater fishery.

Construction at Compressor Station 270B1 and the Laconia Meter Station will not cross or directly impact any waterbodies and, therefore, will not affect any fisheries, fisheries of special concern, or significant fish habitats, such as spawning or rearing areas, or federally-listed essential fish habitat. Beaver Brook forms the northeast boundary line of the Compressor Station 270B1 property; however, all construction will take place a minimum of seventy-five feet from the bank of Beaver Brook, and Tennessee will implement erosion and sedimentation control measures, as appropriate, to prevent sediment from leaving the construction site and migrating toward Beaver Brook.

2. Wildlife

While Tennessee has not conducted a detailed survey of wildlife present within the Project area, the information presented is based upon the habitat conditions and general species listings provided by the NH FG, Degraaf and Yamasaki (2001; 1992) and the Town of Pelham Master Plan Update (2002). The Laconia Meter Station modifications will be located within an industrial site that contains previously disturbed areas. There is no significant wildlife habitat present within the existing facility or the 0.30-acre temporary workspace area. No impacts to wildlife habitat are anticipated because of construction or operation of the meter station facilities in Concord; therefore the majority of discussion pertaining to wildlife habitat and Project-related impacts in the following sections shall be limited to the compressor station site.

2.1 Mammals

The common mammal species typically found within the Oak-Pine habitat located on the Compressor Station 270B1 site are the Virginia opossum, Eastern gray squirrel, striped skunk, white-tailed deer, white-footed mouse (*Peromyscus leucopus*), and woodchuck. The common mammal species typically found within the Red Maple Forested Floodplain habitat are similar to those of the Oak-Pine Forest and on the Compressor Station 270B1 site and would include species adapted to living in damp woodland conditions near wetland edges and streams, such as mink, beaver, and the star-nosed mole (*Condylura cristata*).

The compressor station site is located in the upland, Oak-Pine forest portion of the property located adjacent to an existing residential and industrial development. The impacts to existing

habitat should not significantly affect mammal populations or habitats located within the Project limits. The Red Maple Floodplain forest and riparian habitat will remain undisturbed, while the portion of the upland Oak-Pine forest permanently cleared for development will create forest edge habitat within the wooded parcel.

2.2 Birds

The site of Compressor Station 270B1 is located in the upland, Oak-Pine forest portion of the property located adjacent to an existing residential and industrial development. The impacts to habitat should not significantly affect avian populations or habitats located within the site limits. The Red Maple Floodplain forest and riparian habitat will remain undisturbed, while the portion of the upland Oak-Pine forest permanently cleared for development will create forest edge habitat within the wooded parcel.

Several species of upland game birds and waterfowl provide recreational hunting opportunities within the state of New Hampshire. Ruffed grouse (*Bonasa umbellus*), American woodcock (*Scolopax minor*) and wild turkey (*Meleagris gallopavo*) are hunted within upland areas, while a variety of waterfowl including mallard (*Anas platyrhynchos*), American black duck (*Anas rubripes*) and wood ducks (*Aix sponsa*) provide sporting opportunities within freshwater wetland areas. Construction of the Compressor Station 270B1 is not anticipated to impact any valuable species relative to hunting opportunities because construction will take place outside of wetland areas within the Project property, and the location of the Project site adjacent to existing development precludes the presence of a significant population of upland game species.

2.3 Reptiles and Amphibians

Reptile and amphibian density is likely to be low due to the proximity of the Project sites to existing residential and industrial development. Construction of Compressor Station 270B1 and modifications to the Laconia Meter Station will take place outside of wetland areas within Tennessee's property, therefore avoiding disturbance of the riparian and wetland habitat along Beaver Brook and adjacent to the Soucook River. Any impacts to upland reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the Project limits.

2.4 Significant or Sensitive Species/Habitats

Consultation letters regarding significant or sensitive habitats were sent to the USFWS, NH NHB, and the NH FG on October 24 and 25, 2007. The USFWS stated that no federally-listed or proposed, threatened or endangered species or critical habitat is known to occur in the Project area (Tur 2007). The NH NHB indicated that populations of the state listed endangered brook floater (*Alasmodonta varicosa*) have been documented in Beaver Brook approximately 1.5-miles from the Project property (Coppola 2007a). The NH FG identified two fish species of concern found in Beaver Brook in past sampling events, the redbfin pickerel and the American eel (Decker 2007). As the Project does not involve alteration of wetlands or waterbodies associated with the Beaver Brook drainage system, no impacts to brook floater habitat, redbfin pickerel, and/or the American eel are anticipated.

Additionally, consultation with the NH NHB in regards to modifications at the Laconia Meter Station in Concord, New Hampshire, indicated the presence of the state listed and endangered brook floater in the Soucook River. The Laconia Meter Station, including modifications, is located approximately 500 feet from the Soucook River. Modifications to the meter station will not involve alteration of the Soucook River, and implementation of Tennessee's Construction BMP's and FERC' (2003) Plan will avoid any potential impacts to the brook floater and its habitat. Other sensitive species identified by NH NHB were located at least one quarter mile from the existing Laconia Meter Station site.

The Project will require a total disturbance of approximately 6.8 acres for construction and operation of Compressor Station 270B1, the majority of which is currently forested upland. Modifications to the Laconia Meter Station will require a disturbance of approximately 0.5 acres of previously disturbed meter station property. Short-term impacts to wildlife result from initial construction, displacing species temporarily from the area disturbed by construction activities. Long-term impacts to wildlife habitat due to construction and operation of the compressor station will be limited to clearing of upland forests required for temporary workspace. Areas cleared for required temporary workspace will be revegetated following construction, providing scrub/shrub habitat before transitioning back to forest. Permanent impacts would result from clearing of upland forest for structural development of the compressor station and grounds to be maintained as lawn/grassland.

The wildlife populations that utilize the Project sites will not be permanently adversely affected by the Project. While temporary impacts upon food, cover, and water sources may occur, none of the species located within the Project sites are specialized in such a way that construction of the compressor station and modification to the meter station will inhibit the overall fitness or reproductive output of the populations as a whole. Wetland buffer zones along the riparian corridor of Beaver Brook will remain undisturbed, and human activity in Compressor Station 270B1 sites upland forest habitat will be infrequent post-construction. Many of the mammal, bird, reptile, and amphibian species are adaptive to changing habitat conditions and possess the capability to expand or shift their home ranges to find alternative sources of food, water, and shelter until construction is complete and temporary workspace areas become re-established.

Tennessee and its contractors will strive to minimize impacts to wildlife by expediting construction to the greatest extent practicable. Smaller and less mobile animals may be temporarily impacted during clearing and grading activities, while larger species such as deer, rabbits and raccoons would move away from the disturbed area and return once restoration is complete. These larger animals may be permanently displaced from the developed portions of the site but would likely continue to use the remainder of the site in a manner consistent with existing use patterns. Restoration will occur immediately after construction has been completed, and the areas of impact will be monitored until final site stabilization is achieved. During construction and restoration activities, Tennessee will adhere to the provisions of the FERC's Plan and Procedures to ensure that vegetative cover and associated wildlife habitat conditions are re-established in temporary workspace areas.

3. Vegetation

Compressor Station 270B1 will be located on a parcel of land approximately eleven acres in size and currently owned by Tennessee. The parcel is undeveloped and is primarily forested with the exception of the maintained right-of-way associated with the existing pipelines. The upland forest type on the parcel consists of Appalachian Oak-Pine forest system, while the forested wetland associated with Beaver Brook consists of temperate minor river floodplain system.

The Laconia Meter Station property does not contain significant areas of vegetation aside from maintained lawn surrounding the fenced meter station facility.

Tennessee consulted with the USFWS who concurred that there were no known federally-listed threatened and/or endangered species or significant habitats potentially occurring within the Project area. NH NHB correspondence confirmed that there were not any significant habitat types or vegetative communities of special concern.

The total land requirement for construction and operation of the Compressor Station 270B1 is approximately 6.8 acres, the majority of which are located in the upland Oak-Pine Forest portion of the property. The entire 6.8 acres would be used for construction of the compressor station with a permanent conversion of 4.2 acres of mature forest for the operation of the compressor station. The Project will not impact wetland areas present within the property and will maintain a construction setback of no less than fifty feet. Tennessee will install erosion control barriers, stabilize exposed soils, and restore temporary workspace areas in accordance with the FERC's Plan and Procedures to protect nearby wetland areas from on-site activities and related soil disturbances. In areas where workspace or permanent construction within forested areas is unavoidable, these areas will be cleared, and standard erosion control/cover species will be planted after construction is completed. Temporary workspace identified as forest during field surveys will be allowed to revert to forest. Areas that are already vegetated with grasses or early successional species will be restored after construction has been completed.

Tennessee has sited the compressor station and related workspace to minimize short-term, long-term, and cumulative impacts to vegetative communities and will adhere to the FERC's Plan during construction and restoration activities. During siting of the compressor station, Tennessee incorporated the following measures to minimize impacts to vegetative communities:

- Use of a site adjacent to existing commercial / industrial development;
- Revegetation of the temporary workspace areas with native plant species;
- Avoidance of wetland communities and the associated fifty foot regulated buffer.

The operation and maintenance of the compressor station is expected to have little additional impact after site clearing and restoration is completed. Maintenance would include surveillance of the compressor station and meter station compounds, which would be maintained to ensure access and comply with requirements of 49 CFR Part 192.

4. Threatened and Endangered Species

Consultation with the USFWS did not identify the presence of any known federally-listed threatened and/or endangered species or significant habitats potentially occurring within the Project area.

Correspondence with the NH NHB identified the potential presence of a state-listed freshwater shellfish species within Beaver Brook on the Project site. Documented populations of the state-endangered freshwater mussel species, the brook floater (*Alasmidonta varicosa*), are known from Beaver Brook within approximately 1.5-miles of the Compressor Station 270B1 property. Because the Project does not involve alteration of wetlands or waterbodies associated with the Beaver Brook drainage system, no impacts to brook floater habitat are anticipated. NH NHB also identified the potential presence of the brook floater in the Soucook River in the vicinity of the Laconia Meter Station modifications. The modifications do not involve construction or alteration within the Soucook River. Tennessee anticipates providing mitigation for potential impacts to brook floater habitat through implementation of the FERC's Plan and Tennessee's SPCC Plan during construction of the Compressor Station 270B1 site and modification to the Laconia Meter Station.

In addition, NH NHB indicated that several state-protected species may be present within the vicinity of the Laconia Meter Station. NH NHB provided a rare species list on the state-listed endangered frosted elfin butterfly (*Callophrys irus*), and the state-listed threatened pine barrens zanclognatha moth (*Zanclognatha Martha*), Eastern hognose snake (*Heterodon platirhinos*), grasshopper sparrow (*Ammodramus savannarum*), and several other tracked rare species. Known occurrences of the species identified were located at least 0.25 miles from the existing Laconia Meter Station.

As previously noted, the Project does not involve alteration of wetlands or waterbodies associated with the Beaver Brook or Soucook River drainage systems; therefore, no impacts to brook floater habitat are anticipated. Tennessee proposes to construct the Project in accordance with the FERC's Plan and Tennessee's SPCC Plan to protect the off-site habitats of the state – endangered brook floater and other aquatic species associated with Beaver Brook and the Soucook River. There will be no expansion of the Laconia Meter Station footprint. Therefore, impacts to other state-listed endangered and threatened species and tracked rare species are not anticipated because all modifications to the Laconia Meter Station will be located within the existing, fenced meter station. Known occurrences of state protected species are located a minimum of approximately 0.25 miles from the existing Laconia Meter Station.

Cultural Resources

1. Introduction

The Project requires approvals and permits from federal, state, and local entities. One of the primary Project approval requirements at the federal level is a FERC Certificate of Public Convenience and Necessity ("Certificate") under Section 7(c) of the Natural Gas Act. Consequently, the Project is being reviewed under Section 106 of the National Historic Preservation Act ("NHPA") of 1966, as amended. Prior to authorizing an undertaking, (e.g., the issuance of a FERC approval or Certificate), Section 106 of the NHPA requires federal agencies, including the FERC, to take into account the effect that an undertaking has on cultural resources listed or eligible for listing in the National Register of Historic Places ("National Register") (36 CFR Part 60). The agency must also afford the Advisory Council on Historic Preservation ("ACHP") the opportunity to comment on the undertaking. The Section 106 process is coordinated at the state level by the State Historic Preservation Office ("SHPO"), represented by the New Hampshire Division of Historical Resources. The issuance of a federal agency Certificate or approval depends, in part, on obtaining comments from the SHPO. The primary goals of cultural resource investigations conducted are to locate, document, and evaluate buildings, structures, objects, landscapes, and archaeological sites that are listed, or eligible for listing in the National Register; assess potential impacts of the Project on those resources; and provide recommendations for subsequent treatment, if necessary, to assist with compliance with Section 106.

Tennessee initiated Section 106 consultation with SHPO on August 8, 2007, with a letter presenting the results of an identification survey for review and comment. The SHPO responded on September 4, 2007, concurring with the recommendations in the letter that no significant archaeological resources were identified within the boundaries of the Project area. A technical memorandum was submitted on December 5, 2007, recommending that the Project will have no effect on historic architectural properties. On January 23, 2008, Tennessee submitted the identification archaeological survey report recommending no effect on significant archaeological properties. In its letter dated March 20, 2008, the SHPO stated that it had determined there were no known properties of architectural, historical, archaeological, engineering, or cultural significance within the impacted area of the Project, and no further identification or evaluative studies were recommended.

On December 18, 2007, a letter was submitted to the SHPO recommending that the Laconia Meter Station portion of the Project will have no effect on historic properties. Tennessee again submitted a letter on April 4, 2008, to the SHPO recommending that the Laconia Meter Station site has very low to no potential for historic or archaeological resources present, and no further surveys are necessary. Response from the SHPO is currently pending.

On October 30, 2007, consultation was initiated with six Native American groups to provide them the opportunity to identify any concerns about properties of traditional religious or cultural significance that may be affected by this undertaking. On January 4, 2008, additional attempts were made to contact each of the tribal entities by phone as a follow-up to the initial consultation letters. The Boldwing Clan of New Hampshire was the only tribal entity to respond indicating

that it was not interested in further consultation regarding the Project. Copies of Project correspondence with the Native American groups are found in Appendix L.

2. Area of Potential Effects

The Area Potential Effect (“APE”) is the “geographic area or areas within which an undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist” (35 CFR 800.16(d)).

In general, the APE for archaeological resources includes all areas where the ground may be disturbed, which for this Project will occur at an existing access road, the existing pipeline easement, and the compressor station site. The APE for architectural resources includes all areas where the constructed compressor station and associated facilities might be visible.

3. Overview Results

The initial phase of investigation involved an overview survey to gather information required to stratify the project into zones of cultural resource sensitivity. Cultural resources sensitivity is defined as the likelihood for prehistoric or historic cultural resources to be present within the Project’s APE based on different categories of information. The following methodology was used to complete the overview:

- identification of any known historic architectural and archaeological sites through research and state site file searches. Data pertaining to the known sites, including their locational, functional, and temporal characteristics, were reviewed where applicable;
- review of recent cultural resource management surveys performed in the Towns and Townships where the Project is located; and
- review of primary and secondary historic information (e.g., maps, atlases, Town histories) to learn of areas where previous structures and landscape were potentially located.

Review of SHPO’s files indicates that there are no archaeological or architectural resources located within the boundaries of the Project area. However, several isolated find spots of pre-contact Native American cultural material and two larger sites are located within a one-mile radius of the Project area. In general, the Project area features environmental characteristics, such as soil type, proximity to water bodies, and topographic settings that are consistent with settings of archaeological sites in similar regions in New Hampshire.

A walkover survey of the site, including an existing access road, pipeline easement, and compressor station site, was conducted to validate or refine the archaeological sensitivity assessment made during the overview survey. The walkover survey identified several portions of the Project area considered to contain moderate to high archaeological sensitivity. Archaeologists observed no indications of archaeological sites within the site.

A total of 120 test pits were excavated within the moderate and high sensitivity zones of the Project area. Subsurface testing yielded two find spots of pre-contact Native American cultural

material, which likely represent brief episodes of stone tool maintenance and/or manufacture. No potentially significant archaeological sites were identified, and no further archaeological investigation of the Project area was recommended.

A windshield survey of the APE was conducted to identify any aboveground resources that were at least fifty years of age and possessed some degree of architectural integrity. The windshield survey included a review of existing survey information about historic properties and field survey to identify any properties that were potentially eligible for listing in the National Register. Based on the results of the survey, no properties were identified within the Project APE that was listed or eligible for listing in the National Register. The results of the architectural survey were submitted to the SHPO for review and comment on December 5, 2007, and SHPO returned the submittal letter stamped with its concurrence dated January 23, 2008. All letters from the SHPO and consulting Native American tribes are included in Appendix L.

No potentially significant archaeological sites or aboveground resources were identified during the identification survey, and no further survey of the Project site was recommended.

Socioeconomics

1. Introduction

While the Project involves the construction of a new compressor station in the Town of Pelham, it is not expected to have a significant adverse impact on socioeconomic conditions in the vicinity to the Project location. Due to the scale of the Project, the construction and operation methodologies, as well as impact minimization and mitigation measures, significant impacts to socioeconomic conditions within the Town of Pelham are not anticipated.

The Compressor Station 270B1 site is located in the Town of Pelham, Hillsborough County, New Hampshire. Hillsborough County is located in the southeastern portion of the State of New Hampshire and is bordered to the south by the State of Massachusetts. The U.S. Census Bureau estimates the total population for Hillsborough County in 2006 as 402,789, which is an increase from the 2000 Census (380,841). The largest city by population in the County is Manchester (109,497), with Nashua second largest at 87,157 (US Census Bureau 2007a).

The Town of Pelham encompasses a land area of approximately 26.3 square miles (NH Department of Employment Security 2007) and the population of Pelham in 2006 was 12,514, which represents an increase of 1,600 from 2000 (US Census Bureau 2007a). The population density is 474.7 persons per square mile of land area (NHES 2007). The racial makeup of the Town is 97.3% White, 0.4% Black or African American, 0.2% Native American, one percent Asian, and 0.9% from other races or from two or more races. One percent of the population (within the overall one hundred percent previously identified) is considered Hispanic or Latino (US Census Bureau 2007b). Major sources of tax revenue within Pelham include direct charges to users of governmental services and residential properties (Town of Pelham 2006).

The median income for a household in Pelham is \$68,608, and the median income for a family is \$73,365. The per capita income for the Town is \$25,158. Three percent of the population and 1.6% of families are below the poverty line (US Census Bureau 2007b). The unemployment rate for the Town in 2005 was 5.2%. The manufacturing industry comprises the largest number of employees in the Town of Pelham followed by educational services and retail trade. Private employers employ the greatest number of workers in the Town (NHES 2007).

The Town of Pelham supports its own schools and emergency services. Police, fire, and ambulance services are all available within the Town. Southern New Hampshire Medical Center is a full service medical facility with facilities in Nashua and Hudson, New Hampshire that are approximately 11 and eight miles, respectively, from Pelham. Significant transportation infrastructure is available via major highway systems, with vehicle access to the Town of Pelham obtained via I-93, I-495 and Route 111A. Hotels, motels, and significant sources of temporary housing can be found in the nearby cities of Nashua and Hudson, New Hampshire.

While there may be both short- and long-term socioeconomic impacts associated with the construction and operation of Compressor Station 270B1, the Project has been designed in a manner that minimizes adverse impacts. Short-term impacts may include the potential increase in use of public services such as police for traffic control. The increase in the use of public

services will be offset by the benefits derived from increased short-term revenue streams. During construction of Compressor Station 270B1, there will be minor, temporary increases in the local population, demand for temporary housing and use of temporary services. There will also be an increase in expenditures for local goods and services.

Sufficient services exist within and adjacent to the Town of Pelham to support the needs of the construction crew and personnel associated with construction of the facility. Station 270B1 will incorporate its own fire prevention and control features, which will minimize the potential for increasing demands on local emergency and fire personnel services.

Long-term socioeconomic benefits associated with the continued operation of Compressor Station 270B1 include payment of local property taxes; purchases of services, materials, and supplies from local businesses; and periodic temporary employment for various construction, operation and maintenance activities.

2. Construction Schedule and Workforce

Construction on Compressor Station 270B1 is scheduled to occur over a six-month period from April 2009 to October 2009. Construction of the compressor station is anticipated to require approximately twenty-five workers on a regular basis and up to seventy-five workers including deliveries and other periodic services. Tennessee, through its construction contractors and subcontractors, may hire local construction workers to incorporate into the Project workforce that possess the required skills and experience. The majority of inspectors are anticipated to be non-local due to the specialized knowledge required for the positions.

Non-local workers will generally reside in the Project area for the duration of the construction period and, typically, few workers are accompanied by family members. As a result, the socioeconomic impacts resulting from the construction of Compressor Station 270B1 (i.e., impact on schools and other locally provided services) are not expected to be significant. Local communities will benefit from the payroll taxes paid by construction workers during the construction period. Additional positive impacts will result from payments for construction materials and equipment.

3. Housing Needs and Availability

The majority of the non-local workers are expected to use temporary housing such as hotels, motels, apartments, and campgrounds within commuting distance to the site. Temporary housing is typically used because the construction period is relatively short, and workers generally do not travel with their families. Tennessee does not anticipate that construction crews will encounter any difficulties locating temporary housing, campgrounds, and/or hotel accommodations in the Project vicinity.

4. Transportation

Minor, short-term impacts to the transportation network may result from the construction of Compressor Station 270B1. These impacts will result from the movement of construction

equipment and materials to and from the site and daily commuting of workers to and from the site. These impacts are not expected to be significant.

To maintain safe conditions, Tennessee will require its contractors to comply with applicable vehicle weight and width restrictions. The construction of Compressor Station 270B1 is not anticipated to require the crossing of public roads by construction equipment on a daily basis. The movement of equipment and materials to the site will result in additional short-term impact on the transportation network. Truck traffic associated with transporting construction equipment to the site may increase the workload of local police due to monitoring of vehicle weight, width restrictions, and traffic details. Also, large vehicles may cause some temporary obstructions in traffic flow. Tennessee will work cooperatively with the local police and fire departments, as well as the New Hampshire state police, to ensure a safe and efficient traffic management plan is implemented during construction of the Project. Project related demands on local police are not expected to be significant.

The transportation network may experience a short-term incremental increase to traffic as a result of the movement of construction workers between their residences and the construction site. Several trips in personal vehicles may be made each day to and from the site. Impacts to the transportation network from construction workers commuting to and from home or work are not expected to be significant and should have minimal effect on the local traffic patterns.

5. Residential or Business Displacements

No residences or businesses will be displaced because the construction of Compressor Station 270B1 is located on a parcel of land currently owned by Tennessee in an industrial area. No known tribal lands, national forests, or other public lands are expected to be affected. The construction of the compressor station is not expected to disproportionately affect minority or low income communities or Native American groups. Tennessee has notified the public in accordance with FERC requirements to present the Project to the public.

6. Operational Workforce, Tax Revenues, and Local Expenditures

The economic benefits associated with the operation of Compressor Station 270B1 include increased revenue to Pelham in the form of property taxes.

Geological Resources

Impacts to geological resources will be insignificant and limited to construction activities. The primary impacts will include slope disturbance at the compressor station site resulting from the grading and trenching operations. Surfaces disturbed during construction shall be stabilized upon completion of construction activities. The potential for damage to the compressor station due to subsidence will be minimized through routine inspection of the facility. The potential for slope failure due to earth flow at the Project site will be minimized through specialized construction techniques and the use of erosion control procedures outlined in the FERC's Plan and Procedures.

The Project is not expected to be affected by seismic activity due to the low probability of significant magnitude earthquakes within the Project areas. Tennessee will comply with all applicable regulations regarding building codes and pipe wall thickness and strength. Therefore, Tennessee anticipates that the facilities will be able to withstand all but the most extreme fault movements.

Excavation and trenching procedures, including blasting (if necessary) in areas with shallow bedrock, will be conducted in compliance with all federal, state, and local laws, codes and regulations. Blasting procedures outlined in FERC's Plan will minimize the potential for associated impacts.

Topographic impacts will be limited to grading during construction of the Project. Based on specific site conditions, slopes may be re-contoured to ensure safe working conditions and a level surface for installation of the facilities. Upon completion of construction, disturbed areas will be stabilized and drainage patterns will be restored. Revegetation of temporarily disturbed areas in accordance with the FERC's Plan and Procedures will ensure that these areas are stabilized and prevent erosion. In addition, routine inspection of the compressor station and associated pipeline will help anticipate any possible geologic hazards that may affect operation of the facility.

Proper construction techniques including drainage and stormwater management will minimize potential erosion within the workspace. These techniques may include diversion terraces, erosion control devices and other site-specific best management practices as appropriate. Tennessee will adhere to the FERC's Plan and Procedures to minimize potential impacts during construction and operation of the compressor station, and construction personnel will be properly trained and instructed to comply with and implement the techniques described therein. Construction and restoration activities will be monitored throughout the process to ensure compliance. Operation and maintenance activities will include routine revegetation monitoring as a standard operational procedure.

Soils

1. Introduction

The evaluation of soil characteristics to be encountered during construction of aboveground facilities is based on local soils mapping and soil descriptions from the USDA NRCS Official Soil Series Descriptions. For reference, a soil association is comprised of a group of soils that occur together in a characteristic pattern that allow for mapping as a cohesive unit. Soil series are groups of soils having similar parent material such as glacial outwash and are differentiated mainly on the basis of morphological variations of the soil profile. The soil map units are generally defined by phases, such as slope ranges, of each soil series.

The USDA NRCS Web Soil Survey for Hillsborough County, New Hampshire, Eastern Part; and Rockingham County, New Hampshire identifies soils at the Compressor Station 270B1 site area as Windsor loamy sand ("WdC"), Pootatuck fine sandy loam ("Pu"), and Hinckley loamy sand ("HsB"). Soils at the Laconia Meter Station are identified as Suncook loamy fine sand by the USDA NRCS Web Soil Survey for Merrimack and Belknap Counties, New Hampshire.

The Project is expected to have minimal impacts on soil resources. Compressor Station 270B1 would result in a permanent disturbance of approximately 4.2 acres. The Project site is gently sloping, and wetlands areas and prime farmland are not located within the portion of the property proposed for development. Based upon review of the existing soil data, the potential for erosion problems at the site appears to be low. The off-site movement of sediments is unlikely given the nearly level to gently sloping topography of the site. To prevent the possibility of erosion on the Project site, Tennessee will require all construction contractors to implement the FERC's Plan and Procedures and Tennessee's SPCC Plan. It is unlikely that excavators will encounter bedrock during construction of the Project; however, should bedrock become an issue during construction of the compressor station, Tennessee will utilize mechanical means (i.e. hydraulic rock hammer) to the extent practicable for removal of bedrock. Should blasting be required to properly prepare the site for construction, all applicable state and local regulations will be followed.

Following completion of construction, the site will be stabilized by re-establishment of vegetative cover to prevent erosion and sedimentation on the Project site. The disturbed areas within the fenced compressor yard will be stabilized with vegetation and/or crushed stone. The re-vegetation of the construction workspace will be done in accordance with Part D of the FERC's Plan. Additionally, consultation with the local field office of the NRCS has been initiated to obtain recommended seeding mixes, application rates, and planting dates, though no response has been received to date. .

2. Cropland and Residential Impacts

The Project will not impact cropland or residential areas. The Project is within a site that is not currently in use for residential or agricultural purposes. Approximately two and a half acres on the northern property line bordering Beaver Brook is designated as prime farmland (if drained) by the NRCS. These lands are classified as best suited for producing food, feed, forage, fiber, or

oil seed crops. The soil quality, growing season, and moisture supply make prime farmland soils suitable for producing sustained high yields of crops economically when treated and managed according to modern farming methods. No construction is proposed within the area designated as Prime Farmland on the Project site, and the site is not currently in agricultural use.

3. Mitigation

To minimize off-site movement of sediments during construction, Tennessee will adhere to erosion control, site stabilization, and revegetation standards set forth in the FERC's Plan and Procedures and the NHDES Guidance document *Stormwater Management and Erosion and Sediment Control for Urban and Developing Areas in New Hampshire* (1992). Requirements of the FERC's Plan that pertain specifically to residential and agricultural lands, such as soil compaction and drainage tiles, are not applicable to this Project.

Tennessee plans to strip suitable topsoil from the building areas and stockpile it separately from other spoil within the construction workspace areas for use in the final grading of lawn areas within the limits of the compressor stations fence line. The contractor will be required to install erosion control barriers, as appropriate, to prevent stockpile material from migrating out of the construction workspace and into off-site wetland areas. The re-vegetation of the construction workspace will be done in accordance with Part D of the FERC's Plan. The local field office of the NRCS has provided a copy of the NH NRCS Critical Area Planting Standard and Specification as well as a copy of the Hillsborough County Soil Survey (Hoey 2007). Within areas to be revegetated post-construction, Tennessee may use variations of these seed mixes to reestablish groundcover based on soil and weather conditions.

Land Use, Recreation, and Aesthetics

1. Land Use

Characterization of land use was completed using information gathered from field surveys conducted in 2007 as well as through interpretation of recent aerial photographs of the Project area. Land use types within the site were based on categories identified in the FERC's *Guidance Manual for Environmental Report Preparation* (2005).

Forest / Woodland: Forested upland and wetland areas dominated by trees twenty feet or greater in height with a diameter at breast height ("DBH") of four inches or greater. The forest cover types present in the Project area include Oak Pine Forest and Red Maple Floodplain Forest.

Industrial/commercial: Developed land occupied by businesses of the Pelham Industrial Park. Types of businesses include auto body, concrete, flooring, masonry, sheet metal, cabinetry, and mobile office storage. The existing Laconia Meter Station is also classified as an industrial land use.

Roadways: Existing road surfaces, including dirt access roads and paved road shoulders.

Open Land: Non-residential, non-forested upland, and wetland areas. This category includes shrub land and grass areas within the roadway right-of-way and Tennessee's existing right-of-way.

The Project does not cross other common land uses such as residential areas, agricultural land, open water, schools, parks, recreational fields, or cemeteries.

1.2 Compressor Station 270B1

The land requirement for construction of Compressor Station 270B1 is approximately 6.8 acres, which consists of 2.6 acres of temporary workspace and 4.2 acres for operation of the facility. Approximately 4.8 acres of the 11.6-acre parcel, which Tennessee owns in fee, would be utilized as buffer and visual screen both during and post construction and will not be affected by either construction or operation of the facility. No designated workspace is located in wetland areas. The entire parcel, with the exception of the existing right-of-way, consists of forest/woodland and forested wetland habitat types. The portion of the site containing Tennessee's existing fifty-foot wide pipeline right-of-way consists of open land. Tennessee's property is located in an industrialized region of the Town of Pelham. The surrounding properties include Williams Scotsman (mobile office and portable buildings) to the west and a multi-tenant warehouse building to the south. An age-qualified (55+) residential community is located across Beaver Brook to the north.

Tennessee will construct a private, paved station roadway to provide access to the compressor station facility. Temporary access roads will not be needed for construction. The access road

will be approximately fifteen feet in width. The access road will be located within the 4.2-acre area designated for permanent disturbance for operation of the compressor station.

1.3 Laconia Meter Station

The land requirement for the modifications to the existing Laconia Meter Station is approximately 0.80 acres and is entirely located within an existing disturbed, industrial land use. Approximately 0.50 acres will be used for operation of the modified piping and is located within the boundaries of the existing meter station. The remaining 0.30 acres is located directly south of the meter station and shall be used as temporary workspace only. No modification of existing land use shall occur because of the Laconia Meter Station piping modifications. Because there is no new expansion of the meter station boundary or change in existing land use proposed for the Laconia Meter Station, the remaining discussion of this section will focus solely on the compressor station property.

1.4 Impact and Mitigation

The primary impact to land use is anticipated to be associated with clearing forested areas within the Project site and restrictions of future land uses within the property. The proximity of the new compressor station will be kept free of trees or structures to ensure operational safety and to allow for routine maintenance. Land used as temporary and extra workspace will be allowed to revert to pre-construction condition.

There is an existing water distribution line and associated easement located adjacent to Tennessee's existing pipeline right-of-way. Tennessee shall coordinate with the applicable municipal agency prior to construction to ensure that the water distribution line is adequately identified in the field and protected during construction of the compressor station. Tennessee does not anticipate any impacts to the water line associated with construction or operation of the Project.

2. Residential Areas

Planned development includes any development identified in a master plan or that is on file with the local planning board or the county. The Project is located within the municipal limits of the Town of Pelham, which has been consulted to identify any proposed future development within a quarter mile radius of the Project.

The compressor station is located in an industrial area known as the Pelham Industrial Park. Topography within the industrial park consists of level to gently sloping uplands. An area used for storage of mobile office units is located approximately one hundred feet to the west of the existing Tennessee pipeline right-of-way opposite the Project site, and a multi-tenant warehouse building is located off Industrial Park Road approximately 470 feet to the south of the Project site. Tenants at the warehouse include T&M Manufacturing, Aegis Technologies, Inc., Photomachining, Inc., and The Field Company Water Well Rig Repair. An age-qualified (55+) residential community is located across Beaver Brook to the north; land between this community and the Project site is forested.

3. Planned Residential and Commercial Development

The Town of Pelham has been consulted to identify proposed future development within a quarter mile radius of the Project. Copies of all correspondence are located within Appendix K. Correspondence with the Town of Pelham Planning Board identified one recently approved two-lot subdivision abutting the Compressor Station 270B1 property. One of the approved lots contains a single family residence. No other planned developments were identified near the compressor station site (Hovey 2008).

No residences or buildings are located in or within fifty feet of the workspace at the Project site. All of the Project's facilities will be located within the limits of Tennessee's property; therefore, no access permission from nearby private or public property owners is expected to be required.

Tennessee is designing the compressor station with noise-reduction technology and maintaining existing vegetative buffers around the work areas to ensure residences are not disrupted by the construction and operation of the compressor station. Trees along Beaver Brook will be preserved to the extent practicable to provide visual and sound buffers to the development located to the north. Tennessee is willing to install additional coniferous plantings around the perimeter fence to provide additional screening where possible and still avoid work in the wetlands fifty foot buffer zone. Vehicle trips along Industrial Park Road associated with the operation of the compressor station would be minimal because the station is expected to be unmanned.

4. Public Land, Recreation, and Other Designated Areas

The construction and operation of Compressor Station 270B1 is not expected to adversely affect recreational or public interest areas. The Project site is a wooded parcel located within a developed industrial park. The station yard does not contain, nor is it located within 0.25-mile of, a designated recreational or other public interest area administered by federal, state, or local government agencies or private entities. The property does contain prime farmland soils; however, the portion of the property containing prime farmland soils is located outside of the proposed development and is not currently being used for agricultural purposes.

The Federal Emergency Management Agency ("FEMA") has published Flood Insurance Rate Maps for the Town of Pelham. This mapping is used to determine if any portion of the subject property is located within a special flood hazard area inundated by a one hundred-year flood. Based on this FEMA (1980) mapping, the compressor station site is outside of the one hundred-year flood zone and lies within an area of minimal flooding. While the subject parcel contains an area of A5 (area of 100 year flood, base flood elevation determined) FEMA flood zone along Beaver Brook, the construction site is located above the designated flood elevation zone on the property. The Project area is not located within 0.25-mile of the Federal Wild, Scenic, and Recreational River System.

4.1 Coastal Zone Management Areas - The Project is located outside designated coastal zone management areas (NHDES 2007).

4.2 Hazardous Waste Sites and Landfills

Tennessee obtained a federal and state database search report from Environmental Data Resources, Inc. (EDR, 2007). The EDR regulatory database search performed as part of the FERC's reporting requirements researched properties listed on fifty different environmental regulatory databases (as set forth in the ASTM Standard for Phase I Environmental Site Assessments) up to a 0.25 mile radius from the Project facility locations. None of the identified sites will affect or be impacted by the construction or operation of Compressor Station 270B1.

5. Visual Resources

Visual impacts due to the construction and operation of Compressor Station 270B1 are not expected to be significant because of its location within an existing industrial park. Tennessee will preserve existing trees along Beaver Brook and Industrial Park Road and will also leave approximately 3.9 acres of the parcel undeveloped. Tennessee is willing to install additional coniferous plantings around the perimeter fence to provide additional screening where possible and still avoid work in the wetlands fifty foot buffer zone. The maintenance of the vegetated buffer along the road and Beaver Brook should aid in screening views of the site from points along Industrial Park Road and existing residential development to the north of Beaver Brook.

The compressor station would be visible from those residences located north of Beaver Brook in the Town of Windham's "Whispering Winds" development. Whispering Winds is an 80-unit age-qualified (55+) residential community in the Town of Windham created under the US Fair Housing Act (1968) (Turner 2007). The mature Oak-Pine Forest and Red Maple Floodplain Forest that will be maintained along the northern perimeter of the 11.6-acre parcel will provide a visual buffer for the residential development to the compressor station. Tennessee is planning to design the exterior lighting for the Pelham compressor station to be as non-intrusive as practicable and to minimize illumination of the night sky.

Air Quality

The primary source of air emissions will be a new Solar Centaur compressor turbine equipped with a SoLoNOx™ combustion system to control emissions of NO_x, firing exclusively natural gas and rated at 6,130 hp.¹ Other sources of air emissions at the facility will include a gas-fired emergency generator, a gas-fired fuel gas heater rated at no more than 1.5 MMBtu/hour heat input, gas-fired space heaters rated at a total of no more than 1.5 MMBtu/hr heat input, and a gas-fired water heater rated at no more than 1.0 MMBtu/hr heat input.

Compressor Station 270B1 is located on the northeastern side of Hillsborough County with the northern property line of the site abutting Rockingham County. With respect to National Ambient Air Quality Standards (“NAAQS”), the air quality designations of both Hillsborough and Rockingham counties are “attainment” or “unclassifiable” for all pollutants except ozone. Both the northeastern side of Hillsborough County and the southern portion of Rockingham County are classified as Subpart 2² “Moderate” ozone non-attainment areas with respect to the 8-hour ozone NAAQS of 0.08 ppm.

The NHDES collects air quality data (ambient pollutant concentrations) at numerous monitoring stations throughout the state. These data have been used to define existing ambient air quality conditions. The highest values measured over the most recent three years (2004-2006) are summarized by the NHDES in their table “NH Background Air Quality Data” (<http://www.des.state.nh.us/ard/pdf/BackgroundData.pdf>). In addition, for data not summarized in this table, measured concentrations were obtained from the EPA AirData database. Data from one of the monitoring sites in Nashua are proposed to represent the project site area as Nashua is the closest NHDES monitoring site (approximately seven miles southwest) and would provide conservative data since Nashua is more urban than the site area. For pollutants for which background data are not measured in Nashua (PM₁₀ and NO₂), data from Manchester (approximately sixteen miles north) are used. Ambient air quality concentrations representing background concentration levels are presented in Appendix E, along with the National Ambient Air Quality Standards.

The turbine is subject to both New Hampshire regulations for Reasonably Available Control Technology (“RACT”)—Env-A 1211.06(d)—and Federal New Source Performance Standards (“NSPS”) for turbines (40 CFR 60, Subpart KKKK). Both regulations require that the turbine’s NO_x emissions be no higher than 25 ppmvd @ 15% O₂, and the vendor of the turbine (Solar Turbines) guarantees that the turbine will meet this requirement. The NSPS also require that the turbine use a low-sulfur fuel, and pipeline natural gas meets these criteria.

On December 22, 2007, USEPA promulgated NSPS Subpart JJJJ regulation which would apply to the emergency generator. TGP has not made the final equipment selection, however, TGP will comply with the applicable emission standards as appropriate. The emergency generator is exempt from New Hampshire NO_x RACT requirements per Env-A 1211.01(j).

1 Unless noted otherwise, all horsepower ratings listed in this resource report are at the following site conditions: elevation = mean sea level, ambient temperature = 59 degrees F.

2 “Subpart 2” refers to Subpart 2 of Title I, Part D of the Clean Air Act.

New Hampshire regulation Env-A 2002 requires that plume opacity not exceed twenty percent, with the exception that average opacity may exceed twenty percent for one continuous six-minute period under certain circumstances. In addition, Env-A 2002.08 requires that particulate emissions not exceed 0.30 lb/mmBtu.

The natural gas-fired sources are clean-burning and will meet both the opacity and PM emissions standards. Because the facility's potential to emit ("PTE") is less than fifty tons per year ("TPY") for all criteria air pollutants and less than ten TPY for HAP, the facility will not be a "major source" with respect to regulations for Nonattainment New Source Review ("NNSR"), Prevention of Significant Deterioration ("PSD"), and Title V Operating Permits.

On December 22, 2007, USEPA promulgated revisions to National Emissions Standards for Hazardous Air Pollutants ("NESHAP") Subpart ZZZZ that would impact the emergency generator as a stationary RICE located at an area source for HAP. The emergency generator is also subject to NSPS Subpart JJJJ. Under the revised Subpart ZZZZ, owners or operators in compliance with NSPS subpart JJJJ are also deemed in compliance with NESHAP Subpart ZZZZ.

In accordance with New Hampshire Env-A 607 regulations, the project is required to obtain a Temporary Permit prior to construction. A copy of the permit application is included as Appendix E.

Potential air quality impacts were evaluated with dispersion modeling to determine compliance with NAAQS. The USEPA and NHDES recommended AERMOD model was used to predict maximum potential ground level concentrations that may result from facility emissions. Maximum AERMOD predicted concentrations are presented in Table 9-4. Maximum concentrations are less than Significant Impact Levels ("SILs") for all pollutants and averaging periods. Therefore, concentrations are insignificant relative to the NAAQS, and compliance is demonstrated.

The nearest PSD Class I Area (Dry River National Wilderness Area) is located approximately 110 km north of the project site. However, since the Project is a minor emission source, no Class I area modeling (including visibility assessment) was conducted.

Noise Quality

At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week. This variation is caused in part by changing weather conditions and the effects of seasonal vegetative cover, in addition to anthropogenic activities. As a part of the environmental permitting process, a Noise Impact Assessment ("NIA") was conducted to determine the likelihood of the Project complying with applicable regulatory environmental noise limits. For the purposes of the NIA, a project study area was identified in the vicinity of the Project site, which included four noise sensitive areas ("NSAs"). NSAs can comprise residences or any area used for the operation of churches, schools, hospitals, and/or nursing homes. The four NSAs were selected because they are the nearest potentially sensitive receptors to the Project site considering direction.

Tennessee estimates that there are approximately 181 houses and ten industrial buildings located within a ½ -mile radius from the center of the compressor building, which includes approximately ninety-two existing residential units within the Whispering Winds retirement community located to the north of the site and a newly constructed single family residence located immediately south of NSA 4. Currently, there is also another condominium complex under construction (or an expansion of the Whispering Winds retirement community) to the north of the site that was not included in this estimate. Appendix D contains an aerial based figure that shows the distribution of houses within ½-mile of the compressor building emission stack. The closest residence is approximately 594 feet from the turbine building.

A baseline sound survey was conducted at the NSAs on August 22 and 23, 2007. Daytime measurements were collected between the hours of 11 am to 3 pm, and nighttime measurements were collected between the hours of 11 pm to 2 am. The ambient sound measurements were taken using a Larson Davis 831 real-time sound level analyzer, which exceeds all requirements set forth in the American National Standards Institute ("ANSI") Standards for Type 1 instruments in terms of quality and accuracy. Extraneous sound events were extracted from the baseline dataset in order to represent typical ambient acoustic conditions at the NSA locations. The sound survey documented the existing sound levels and a summary is provided in Appendix I.

The existing sound levels are typical of a rural/suburban residential area. The principal source of noise during measurements was intermittent traffic on the nearby roadways, activity at the nearby industrial complex to the south of the compressor station site, distant residential construction occurring within the Whispering Winds condominium complex to the north, and periodic aircraft over flights. Birds, insects, and leaf rustle were the dominant sources of natural sound. Weather conditions during the sound survey were conducive to accurate data collection with a partial cloud cover and wind speeds ranging from calm to seven mph (west). There was no precipitation during or preceding the measurements and area roadways were dry. The average temperatures were 75 degrees °F daytime and 55 degrees °F nighttime.

A temporary increase in noise levels may result from construction activities at the compressor site and at the Laconia Meter Station. The magnitude of the impact would depend on the noise level generated by various equipment types, the duration of the construction activity, and the

distance between the noise source and the receptor. Noise associated with construction activities will be temporary and intermittent because construction equipment will primarily operate during daytime hours and on an as-needed basis.

Potential noise impacts on NSAs resulting from Project operations were estimated with the use of equipment manufacturers' sound specifications, engineering guidelines, and field data collected from recently sited compressor stations of similar scope and size. In predicting operational noise, the sound sources included were: a Solar Centaur compressor turbine (including air intake and exhaust systems, mechanical casing noise, and exhaust line and stack), a gas-fired auxiliary generator, compressor building ventilation system, external lube oil cooler, external gas aftercooler, and above-ground compressor station piping.

Effective and proven noise mitigation measures have been included in the design of the Project to ensure that noise attributable to the operation of the new compressor station will not exceed applicable federal, state, county, and Township noise regulations.

Two measures used by federal agencies to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ($L_{eq(24)}$) and the day-night sound level (L_{dn}). The $L_{eq(24)}$ is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the $L_{eq(24)}$ with 10 decibels of the A-weighted scale (dBA) added to the nighttime sound levels between the hours of 10 p.m. and 7 a.m., to account for people's greater sensitivity to sound during nighttime hours.

FERC regulates noise from compressor stations under Part 380 – Regulations Implementing the National Environmental Policy Act (18 CFR 380.1). This regulation sets a limit for noise generated by a new or modified compressor station to an L_{dn} of 55 dBA at any pre-existing noise sensitive areas such as schools, hospitals, or residences.

Noise regulations applicable to the Project were reviewed at state, county, and local levels. There are no quantitative noise statutes or regulations in the state of New Hampshire with numerical decibel limits directly applicable to this Project. The Town of Pelham, which is situated in Hillsborough County, is the site for the Project. No numerical noise guidelines/regulations were provided by Hillsborough County or Rockingham County, which was also considered because it is adjacent to the site. Pelham does not have a noise bylaw or ordinance with numerical decibel limits. The Town of Windham, which directly abuts the site, has set frequency dependant noise limits that are provided in Section 714 of the *Town of Windham Zoning Ordinance and Land Use Regulations*. These noise regulations only apply to sound-emitting facilities within the Town of Windham and are therefore not applicable to the Project, which is located entirely within Pelham.

Operational noise levels were modeled using DataKustik GmbH's CadnaA, the computer aided noise abatement program (v 3.7). More detailed information regarding the noise modeling analysis performed is included as Appendix M. Using the equipment sound levels outlined in the noise analysis and measurements of the existing sound levels, the expected change in future

sound levels were determined mathematically using industry-standard methods and are presented in Appendix I.

When compared to the measured existing sound levels, the future L_{dn} sound levels, which take into account the potential noise impacts of the Project, are expected to fully comply with the regulatory limits at all NSAs. The Project (with mitigative measures as described in Appendix I) will not create a noise nuisance condition and will be within the sound level limits as set by FERC. As the Project is currently at the schematic level, the candidate noise control mitigation measures may not be required. When the design of the facility is finalized, the potential noise source and noise control measures will be reviewed once again.